
(12) **UK Patent Application** (19) **GB** (11) **2 000 471 A**

- (21) Application No. **7827654**
(22) Date of filing **22 Jun 1978**
(23) Claims filed **22 Jun 1978**
(30) Priority data
(31) **7720464U**
(32) **30 Jun 1977**
(33) **Fed. Rep of Germany (DE)**
(43) Application published
10 Jan 1979
(51) **INT CL²**
B32B 1/00 5/24 5/32
(52) Domestic classification
B5N 0100 0526 0532
(56) Documents cited
GB 1495980
GB 1415852
GB 1389201
GB 1271101
GB 1240733
GB 1062670
(58) Field of search
B5N
(71) Applicant
Carl Freudenberg KG
6940 Weinheim Berg-
strasse, Hohnerweg 2,
West Germany Fed. Rep.
(72) Inventors
Klaus Heckel
Friedemann Klaffke
Günther Kurtze
Walter Umann
(74) Agents
Gill Jennings & Every

(54) **Wall panels**

(57) Wall panels suitable for use in sports halls comprise a body of resilient foamed material and a flexible continuous sheet material laminated to the outer face of the body. The foam, which may be a closed-cell cross-linked polyolefin, may be formed of a plurality of layers in which the layer forming the face of the body is softer than the other layer(s). The sheet material may be a foam and/or fabric optionally covered by a layer of foamed or non-foamed polyvinyl chloride.

GB2 000 471 A

SPECIFICATION

Wall panels

- 5 Where walls are liable to be subjected to knocks and impacts, for instance especially sports halls such as gymnasiums, it is normal to clad the walls with wall panels. The panels conventionally are of wood but they suffer from their high hardness and from their tendency to splinter. Also wood panels are often very sensitive to moisture such that their properties and appearance deteriorate quite rapidly.

- 10 More recently panels of polyurethane foam have been proposed. Whilst these have improved elasticity they have low hardness with the result that such panels may show wear after very little use. Also such panels are generally made in a closed mould which severely limits the types and sizes available and their production tends to result in high wastage, and thus increased cost.

- 15 Attempts have been made to provide a satisfactory surface on walls of sports halls and similar buildings by gluing one or more layers of a facing sheet of a thermoplastic foam directly onto the brickwork or other wall material. The sheet material is provided in strips which are laid along side one another and are welded or glued to one another in the region of the butt joints. However this is a very slow and skilled operation. Despite the cost the results obtainable were not usually very satisfactory. Often it was necessary subsequently to glue over the butt joints.

- 20 A resilient wall panel according to the invention comprises a body of resilient foamed material and a flexible, continuous, sheet material laminated to the outer face of the body.

- 25 By the invention it is possible to produce panels cheaply which have good elasticity and high resistance to mechanical loading and which can easily be fitted by inexperienced personnel to give a good appearance, without untidy butt joints.

- 30 The foamed material of which the foamed body is formed is preferably a closed cell cross-linked polyolefin foam. Preferably it has a bulk density of from 20 to 100 kg/m³ with best results generally being obtained with a value of about 35 kg/m³, especially in the foam layer making up the outer face of the body. The body may be formed of a single layer but preferably is formed of a plurality of layers laminated to one another. In such a laminate the layer of the body forming the face of the body should be softer than the other layers and the or each succeeding next layer harder than the preceding layer.

- 35 It is particularly preferred that each panel should have a trapezoidal cross section, in which event the sides and top face defining the trapezium body are preferably all formed by a layer of foam material softer than the foam of the remainder of the body. Preferably the body is 10 to 40 mm thick.

- 40 The outer face of the body is covered with a flexible sheet material. This may be a sheet or foil, a textile, or a composite of a textile with a foil. The textile may be a knitted, woven or non-woven fibrous sheet material.

- 45 A preferred sheet material is a composite comprising a supporting fabric and a covering layer of

foamed or non-foamed polyvinyl chloride, such materials being produced as leather substitutes and are preferably being constructed, for instance by graining or imprinting of the outer surface, to resemble natural leather.

- 50 The accompanying drawing illustrates one panel according to the invention. This panel consists of a sheet material 2 covering a trapezoidal shaped foam body formed of upper layer 1.1 and lower layer 1

- 75 laminated to it. Each layer is of a closed cell cross linked polyethylene foam. Layer 1 has a density of 50 kg/m³ while layer 1.1 has a density of 35 kg/m³ and provides the entire face, including the sides, of the foam body.

- 80 The provision of the leather substitute or other continuous sheet 2 gives the panel high resistance to high mechanical point loadings and by appropriate choice of the material and appearance of the sheet 2 so the appearance of the panel can be varied widely.

- 85 The panel can be bonded to the wall, for example direct onto the brick or masonry surface, by conventional glues. Butting or overlapping joints can be avoided because of the concealed edges provided by the described panel. This it is possible to clad even a

- 90 very large wall in an artistic and aesthetic manner very easily. Using the described thermoplastic foam it is possible to shape the panels around corner pieces. This can be achieved merely by heating the panel sufficient to soften the foam body in the region

- 95 that is to be folded, the heating preferably being conducted by hot air. Once softened, the panel can easily be bent by hand to comply either with external or re-entrant corners.

- 100 Panels not only have the advantage that they can be produced cheaply, fitted easily and cheaply, and are capable of having good properties in use, but also they are generally made from materials that are wholly non-toxic both chemically and physiologically.

105 CLAIMS

1. A resilient wall panel comprising a body of resilient foamed material and a flexible, continuous, sheet material laminated to the outer face of the body.

2. A panel according to claim 1 in which the foamed material is a closed cell cross-linked polyolefin foam.

- 115 3. A panel according to claim 1 in which the foam has a density of 20 to 100 kg/m³.

4. A panel according to any preceding claim in which the said body is formed of a plurality of layers of foamed material laminated to one another and in which the layer of the body forming the face of the body is softer than the other layers and the or each succeeding next layer is harder than the preceding layer.

5. A panel according to any preceding claim having a trapezoidal cross section and in which the sides and top face defining the trapezium are formed by a layer of foam material softer than the foam of the remainder of the body.

6. A panel according to any preceding claim 10 to 130 40 mm thick.

7. A panel according to any preceding claim in which the sheet material comprises a knitted, woven or non-woven fibrous sheet material.
8. A panel according to claim 7 in which the sheet material comprises a supporting fabric and a covering layer of foamed or non-foamed polyvinyl chloride.
9. A panel according to claim 8 in which the sheet material is constructed to resemble natural leather.
- 10 10. A panel according to claim 1 substantially as herein described with reference to the Examples.
11. A sports wall clad with panels according to any preceding claim.

Printed for Her Majesty's Stationery Office, by Croydon Printing Company Limited, Croydon Surrey, 1978.
Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

2000471

